DOCUMENT RESUME

ED 102 171 95 TM 004 140

TITLE IEA Six-Subject Survey Instruments: Science Teacher Questionnaires.

INSTITUTION International Association for the Evaluation of Educational Achievement, Stockholm (Sweden).

SPONS AGENCY Ford Foundation, New York, N.Y.; Leverhulme Trust, London (England).; Office of Education (DHEW), Washington, D.C.; Tri-Centennial Fund, Stockholm (Sweden).; Volkswagen Foundation, Hanover (West Germany).

NOTE 17p.; For related documents, see TM 004 138-163 and ED 034 290 and 300

EDRS PRICE MF-$0.76 HC-$1.58 PLUS POSTAGE

DESCRIPTORS *Academic Achievement; Background; *Comparative Education; *Cross Cultural Studies; *Questionnaires; *Science Teachers; Teacher Attitudes

IDENTIFIERS *International Evaluation Educational Achievement

ABSTRACT

In 1965 the International Association for the Evaluation of Educational Achievement (IEA) inaugurated a cross-national survey of achievement in six subjects: Science, Reading Comprehension, Literature, English as a Foreign Language, French as a Foreign Language, and Civic Education. The overall aim of the project was to use international tests in order to relate student achievement and attitudes to instructional, social, and economic factors, and from the results to establish generalizations of value to policy makers worldwide. Contained here are two questionnaires for Science teachers measuring teacher background, attitudes, and how they regard the job of Science teaching. Answer keys and statistical data can be found in ED 081 639. (RC)

IEA SIX-SUBJECT SURVEY INSTRUMENTS

The basic procedures to be followed in the main testing of the IEA Six-Subject Survey were set out in a series of manuals:

Stage 2	IEA/M1	Manual for National Centers
	IEA/M2	Manual for School Coordinators
	IEA/M3	Manual for Test Administrators
Stage 3	IEA/M1/Stage 3	Manual for National Centers
	IEA/M2/Stage 3	Manual for School Coordinators
	IEA/M3/Stage 3	Manual for Test Administrators

These manuals are available from ERIC Clearinghouse.

The following extracts from these manuals have been appended to this particular IEA instrument to provide researchers with the minimum necessary test instruction information (e.g., such things as the instructions on the practice items and the warnings concerning the amount of time left for the test have been omitted here). For full details, please consult the appropriate manuals.

The Data Bank Instrument Number which appears below is a new number, assigned since the instruments were administered for the purpose of easily linking items in the instruments with the resultant variables in the Data Bank holdings. Each such variable is named in the codebook using the new instrument number and (usually) the number of the item within the instrument from which the variable is derived. The key to the new instrument numbers is as follows:

1: Type of Instrument

E = Examination (student)
Q = Questionnaire (student)
T = Teacher questionnaire
S = School questionnaire

2: Student Population

1 = I	6 = II and IV
2 = II	7 = I, II and IV
3 = III	8 = I and IV
4 = IV	S = IV Specialist
5 = I and II	N = NA: Teacher or School questionnaire

3: Subject

S = Science
R = Reading Comprehension
L = Literature
M = Mother Tongue (Reading Comprehension and Literature)
E = English as a Foreign Language
F = French as a Foreign Language
C = Civic Education
2 = All Stage 2 Subjects
3 = All Stage 3 Subjects
5 = All Stage 2 and Stage 3 Subjects

4-5: Instrument Within Type

One or two characters used when necessary to uniquely identify each instrument when there is more than one instrument of the same type.

Instrument Name Teacher Questionnaire - Science

Data Bank Instrument Number TNSG

Teacher Questionnaires

The School Coordinator is responsible for passing on the Teacher Envelopes to the appropriate teachers and to do everything possible to ensure their return, completed. (Each teacher is expected to fill in only two or three of the parts of the questionnaire. The parts which are appropriate are explained on the questionnaires themselves). Teachers should be requested to insert their completed answer cards into the Teacher Return Envelope which can then be sealed.

The School Coordinator should collect the Teacher Return Envelopes for return to the National Center.

TEACHER QUESTIONNAIRE

SCIENCE

The answers to these questions should be recorded in section BB of the enclosed answer card. Do not answer these questions if you do not teach Science.

Indicate how many semesters of full-time training you have completed at a post-secondary school institution. (Note: a full academic year is here counted as equivalent to two semesters.)

1. In Physics:

   A. 0 Semesters B. ≤ 2 C. $> 2 \leq 4$

   D. $> 4 \leq 6$ E. > 6

2. In Chemistry:

   A. 0 Semesters B. ≤ 2 C. $> 2 \leq 4$

   D. $> 4 \leq 6$ E. > 6

3. In Biology (including Botany and Zoology):

   A. 0 Semesters B. ≤ 2 C. $> 2 \leq 4$

   D. $> 4 \leq 6$ E. > 6

4. In Geology:

   A. 0 Semesters B. ≤ 2 C. $> 2 \leq 4$

   D. $> 4 \leq 6$ E. > 6

5. In other Physical and Natural Sciences:

   A. 0 Semesters B. ≤ 2 C. $> 2 \leq 4$

   D. $> 4 \leq 6$ E. > 6

Indicate how many weeks (full-time equivalent) in-service teacher training you have received during the last 5 years. Please include also evening courses and other short in-service courses, counting 6 hours equal to one full-time day and 5 days equal to one full-time week.

6. In Physics:

   A. 0 weeks B. $> 0 \leq 2$ weeks C. $> 2 \leq 4$ weeks

   D. $> 4 \leq 9$ weeks E. > 9 weeks

7. In Chemistry:

   A. 0 weeks B. $> 0 \leq 2$ weeks C. $> 2 \leq 4$ weeks

   D. $> 4 \leq 9$ weeks E. > 9 weeks

Indicate how many weeks of full-time in-service training you have received during the last five years.

8. In Biology (including Botany and Zoology):

A. 0 weeks B. $>0\leq2$ weeks C. $>2\leq4$ weeks

D. $>4\leq9$ weeks E. >9 weeks

9. In Geology:

A. 0 weeks B. $>0\leq2$ weeks C. $>2\leq4$ weeks

D. $>4\leq9$ weeks E. >9 weeks

10. In other Physical or Natural Sciences:

A. 0 weeks B. $>0\leq2$ weeks C. $>2\leq4$ weeks

D. $>4\leq9$ weeks E. >9 weeks

11. Have you taken part in any science curriculum reform project for example, by using and reporting back on trial materials?

A. Yes

B. No

12. Do you feel that there are restrictions on your freedom to adapt the teaching syllabus to suit your particular style and the needs of your students? If so, where does the authority lie.

A. I feel no restrictions

B. authorities within the school

C. authorities outside the school

13. Do you feel that limitations of laboratory facilities and equipment hamper your teaching?

A. Yes, very seriously

B. Yes, slightly

C. No, not at all

14. Indicate to what extent you attempt to make the students' practical experience the basis of their scientific knowledge.

A. As much as possible, and I make a considerable effort to this end

B. I think it important, but other sources of information are equally important

C. Only a small amount of the students' scientific knowledge can be based upon their practical experience.

15. To what extent do you think that science teaching should be concerned with developing the ability to think scientifically as well as giving a systematic knowledge of science.

A. I think the major emphasis should be upon developing the ability to think scientifically; the student will pick up the knowledge he needs in the process.

B. I think an equal balance should be held between scientific thinking and the acquisition of information.

C. At the school level, the acquisition of information is more important; the student will learn to think scientifically as a result of acquiring this information.

16. Indicate how often you give your Science students opportunities for planning and carrying out limited scientific investigations on their own

A. Never

B. Seldom

C. Occasionally

D. Frequently

17. Indicate to what extent you consider it important for students as part of their Science training to take part in extra-curricular Science activities such as Science exhibitions, Science clubs, visits and field expeditions.

A. of great importance

B. of some importance

C. of little or no importance.

Indicate how many hours per week you spend, on the average, in the preparation of all your Science lessons, in marking students' Science work and in reading to keep up with your subject matter.

18. During school hours:

A. ≤ 3 hours B. >3 ≤6 hours C. > 6 ≤10 hours

D. > 10 ≤15 hours E. > 15 hours

19. Outside school hours

A. ≤ 5 hours B. > 5 ≤10 hours C. > 10 ≤15 hours

D. > 15 ≤20 hours E. > 20 hours

20. Do you feel the need for refresher courses in Science?

A. Yes

B. No

If "yes" is this because you (see Q. 21 - 23)

21. now have teaching commitments which are outside of the area in which you were initially trained?

A. Yes

B. No

22. feel the need to keep up with major new developments in Science itself.

A. Yes

B. No

23. feel the need to keep up with major new developments in Science teaching methods.

A. Yes

B. No

24. Indicate if you have all the opportunities you need for refresher (in-service) training in Science.

A. Yes

B. No

ACCOMPANYING NOTES

TEACHER QUESTIONNAIRE

"Population of Teachers to whom Teacher Questionnaires should be given."

Population I

All classroom teachers in selected schools who are teaching students aged 10-11 or [illegible]. In large schools a sub-sample of this population of teachers can be taken. All selected teachers should be requested to complete the General Section of the questionnaire; if any are teaching science (in any form) they should be asked to complete the Science section; if any are also specific teachers of reading, they should be asked to complete the Mother Tongue section.

Populations II and IV

All teachers in selected schools who are teaching Science, (the Mother Tongue for countries testing in Reading Comprehension and/or Literature). All selected teachers should be requested to complete the General Section of the questionnaire; in addition, science teachers should be asked to complete the Science section and Mother Tongue teachers, the Mother Tongue section.

Science

Q.1-5 If the word "semester" is not used, replace with "year" or "term" whichever is appropriate. However the question should be asked in such a way that the International coding can be used on the answer card. Where, for example, in physics both a laboratory and lecture class have been taken in a semester, this is one semester.

Q.6-10 This may be replaced into hours or days in some countries where appropriate, but must be coded in terms of the International code.

GENERAL NOTES

1. Instructions for all questionnaires should encourage all respondents to give a response to every item (except items 28-59 in the Teacher Mother Tongue questionnaire which M.T. teachers not teaching literature should omit). It is left to National Centers to frame the statement for their own countries. Indeed, test administration and school co-ordinators should be asked by National Centers to ensure that all questionnaire items are completed.

2. Obviously greater freedom is permissible in the translation of questionnaire items than in test items. In some instances items will have to be completely adapted for national use. However, where an international code has been provided, it is essential that the information is obtained nationally in such a way that the international coding can be applied.

3. In the stem of most questions the word "indicate" has been used. Where the National Center has decided to use an NRC answer card, the stem will have to be changed to read something like "indicate by blackening in the appropriate space on the answer card". Where punch cards will be returned by a National Center, their stem should be changed to something like "indicate by circling the appropriate letter below".

4. All questions in which the response indicates the grouping of a continuous variable, a short-hand convention using the signs $\geq$ (less than or equal to) and $<$ (greater than) has been used. National Centers should translate these signs into appropriate words for the respondents to the questionnaires. The convention has been used for the sake of accuracy.

5. Wherever Mother Tongue is printed in parentheses, the actual Mother Tongue should be inserted.

6. Where appropriate, national examples should be given in order to help respondents answer the questions accurately.

7. Unscaled Variables. Where it has been difficult to evolve an international scale which adequately represents different practices in participating countries, the variable has been designated as an international unscaled variable. National Centers are asked to formulate for each of these variables by to a nine-point scale which will

be appropriate for use within their country and which conforms with the general outline provided in the specific accompanying notes. The purpose of this outline is to ensure a certain uniformity of categorisation between the different countries, that is, all countries should collect data on the same dimension and ordered in the same way. It is important that National Centers transmit copies of their classificatory schemes to the IEA International.

8. In order to secure the most accurate information to questionnaire items, countries may wish to consider assigning several of the items as 'home tasks' for the student. Students would be asked to find out the answers to several of the items in preparation for completing the questionnaire. Such items which could profitably be assigned as 'home tasks' include: Father's Occupation and Father's and Mother's Education.

9. In a number of countries, students will require some guidance from teachers in answering questionnaire items. Such guidance is appropriate and desirable. It is quite possible that, in some situations, teachers will read questionnaire items aloud, discuss points of clarification, allow time for students to supply an answer and proceed to the next item. Such a step by step approach to the completion of the student questionnaire may be necessary at the 10-year-old level in various countries where students have had little or no experience with questionnaires. Where students may be expected to give the same answer (e.g.,number of students in class, grade student is in etc.) the best procedure is for the teacher to supply the answer and get all students to enter it in. It is, of course, clear that no help will be given to students when answering the tests (as opposed to the questionnaires).

10. Where students are requested to give a quantitative response to an item, e.g. number of hours of homework, these are to be coded to the nearest whole hour, year, etc.

11. Where a response of zero or none is given to a questionnaire item, this is to be coded 0 on the punch card. Where an individual has failed to record a questionnaire item, the appropriate column should be left blank. The distinction between a blank and a zero is an important one.

12. Wherever coding or punching schemes are being used in the coding of responses, minimum and maximum values for each variable are set forth in the international coding scheme. Where a student indicates a response which is greater than the maximum value, it is to be coded as the maximum value. Thus, if the maximum value for a certain variable is 25, a response of 30 would be coded as 25, since 25 means 25 or more.

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Instrument Name Science Teacher Questionnaire Views on the Teaching of Science
Views on Practical Work

Data Bank Instrument Number TNSV

Teacher Questionnaires

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SCIENCE TEACHER QUESTIONNAIRE

VIEWS ON THE TEACHING OF SCIENCE

VIEWS ON PRACTICAL WORK

Below are given 10 statements on the teaching of science. We are interested in obtaining information on how teachers regard the job of science teaching, will you therefore indicate against each item the extent to which you agree or disagree with each statement. Please answer by blackening in the appropriate space on your answer card.

1. Open-ended investigations are possible, and desirable, from the very beginning of science education.

   A. Disagree strongly.
   B. Disagree.
   C. No opinion.
   D. Agree.
   E. Agree strongly.

2. Practical experience is not essential for the acquisition of scientific knowledge.

   A. Disagree strongly.
   B. Disagree.
   C. No opinion.
   D. Agree.
   E. Agree strongly.

3. There is so much to learn about science nowadays that it is better not to take up time with practical work.

   A. Disagree strongly.
   B. Disagree.
   C. No opinion.
   D. Agree.
   E. Agree strongly,

4. A pupil may forget all he learned at school about the facts and principles of science but the experience he gains in carrying out his own practical investigations will last him in good stead for ever.

   A. Disagree strongly.
   B. Disagree.
   C. No opinion.
   D. Agree.
   E. Agree strongly.

5. A teacher's time is better employed in giving lectures and demonstrations than in preparing for laboratory work.

A. Disagree strongly.
B. Disagree.
C. No opinion.
D. Agree.
E. Agree strongly.

6. The difficulties of providing opportunities for practical work of an investigational nature are so great that teachers should be advised not to undertake such work.

A. Disagree strongly.
B. Disagree.
C. No opinion.
D. Agree.
E. Agree strongly.

7. A pupil's science education is not complete unless he has had opportunities for carrying out investigations on his own.

A. Disagree strongly.
B. Disagree.
C. No opinion.
D. Agree.
E. Agree strongly.

8. However hard-pressed a science teacher is, the top priority in his work should be to provide opportunities for his pupils to carry out their own original investigations.

A. Disagree strongly.
B. Disagree.
C. No opinion.
D. Agree.
E. Agree strongly.

9. At least half a pupil's time in science should be spent on practical work preferably in a laboratory or in the field,

A. Disagree strongly.
B. Disagree.
C. No opinion.
D. Agree.
E. Agree strongly.

10. Pupils gain little of value from carrying out their own investigations.

A. Disagree strongly.
B. Disagree.
C. No opinion.
D. Agree.
E. Agree strongly.